



ARTHROSCOPIES; REVIEW IN CLINICALLY SUSPECTED KNEE INJURIES BUT NORMAL MRI (42 CASES)

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Article received on:
00/00/2014

Accepted for publication:
00/00/2014

Received after proof reading:
21/02/2015

ABSTRACT... Knee pain due to injury is a common presentation in orthopedic outpatient department. X-rays, MRI and arthroscopy are the basic investigation tools when menisco-ligamentous injury is suspected. If MRI is normal usually arthroscopy is withheld. In this study we analyzed the arthroscopic findings of such cases in which X rays and MRI were normal or near normal. **Objectives:** 1- To find out knee injuries in patients with painful knees. 2- To find out any other pathology of knee joint. **Design:** It's a retrospective study in which 42 such cases were analyzed who underwent arthroscopy with a normal or near normal MRI. **Setting:** This study includes cases done at CMH Rawalpindi, Muzaffarabad, Kharian and Malir. Period includes May 2005 to August 2014. A total number of 209 arthroscopies were done by the same orthopedic surgeon. **Results:** Out of 42 cases 31 were males while 11 were females. Mean age was 31.4 years (range 18-54 years). In all cases arthroscopy was done by the same orthopedic surgeon within 6 weeks of MRI. MRI films were reported by a qualified radiologist. In all cases there was a strong clinical suspicion of menisco-ligamentous injury while X-rays and MRI were near normal or normal. Out of 42 cases in 36 (85.7%) cases, one or more findings were detected on arthroscopy which were not picked by MRI. **Conclusions:** It is concluded that if a menisco-ligamentous injury is strongly suspected in a knee on clinical examination, arthroscopic evaluation should not be denied to a patient even if X-rays and MRI are normal.

Key words: MM medial meniscus, Menisco-ligamentous, MRI, Arthroscopy, DVT

Article Citation: Orfi FA, Majeed S. Arthroscopies; review in clinically suspected knees but normal MRI (42 cases). Professional Med J 2015;22(2):191-194.

INTRODUCTION

Knee injuries are common among young age group resulting in menisco-ligamentous damage. In older age group osteoarthritic changes are more common. Meniscal injuries, ligamentous injuries, osteochondral defects and chondromalacia patellae are common causes in young people. Painful knees are examined clinically and biochemical profile is carried out to rule out metabolic causes. Effusion /haemarthrosis may be aspirated for examination. When menisco-ligamentous injuries are suspected clinically, X-rays and MRI examination are carried out. Arthroscopy is done generally if MRI examination suggests grade III or higher injury. If MRI reveals normal findings or grade I menisco-ligamentous injuries, such cases are usually managed conservatively. In this study we reviewed 42 cases of arthroscopies in which MRI was either normal or showing grade I menisco-ligamentous injuries, but there was a strong suspicion of higher grade menisco-ligamentous injury. All

these cases remained symptomatic after the initial conservative treatment. Arthroscopy was performed within six weeks of MRI test. Results of arthroscopies are analyzed. Clinical examination done by an experienced consultant has a higher accuracy value even if MRI does not support that. However MRI should be carried out in all such cases to confirm the diagnosis and to find any other concomitant pathology of knee joint. All symptomatic knees should undergo arthroscopy if menisco-ligamentous injury is suspected clinically even if MRI is normal or shows grade I changes.

PATIENTS AND METHODS

It's a retrospective study carried out at Combined Military Hospitals of Rawalpindi, Muzaffarabad, Kharian and Malir from Sep 2005 to August 2014. All cases were clinically examined and subsequent arthroscopy was performed by the same consultant. All cases were symptomatic, have clinical suspicion of menisco-ligamentous injury and MRI was either normal or showing grade I

tears which are generally managed conservatively. Clinical information was passed to the reporting radiologist before MRI. In all cases MRI was done without contrast using tesla 1. T1 and T2 weighted images were obtained with 4 mm slices. MRI films were reported by a senior qualified radiologist at the station. Clinical tests performed included McMurray's test, Anterior and posterior drawer signs, Lachmann test, Lateral and Medial stress tests and Apley's grinding and distraction tests.

Inclusion Criteria

- Strong clinical suspicion of menisco-ligament injury
- Cases in which symptoms persisted even after conservative treatment
- X-rays were normal in all cases
- MRI was either normal or showing grade 1 injury only
- Arthroscopy was done within six weeks of MRI test in all cases.

Exclusion Criteria

- Patients who underwent any previous knee procedure/surgery like biopsy, arthroscopy or reconstructive surgery
- Patients with hyperuricemia .
- Patients having an interval of more than 06 weeks between MRI and Arthroscopic examination. 3 such cases were excluded from study.
- Asymptomatic patients with normal MRI
- Patients having negative clinical examination for menisco-ligamentous injury and insignificant MRI findings
- Patients showing intra-articular fracture on X-rays or MRI test.

RESULTS

A total number of 209 arthroscopies done by the author during Sep 2005 to Aug 2014 were reviewed during that study. 08 cases having hyperuricaemia were not included from the very beginning. Out of these 48 cases were having normal MRI or having grade I injuries of meniscus or ligaments. 06 cases having previous history of any procedure/surgery (biopsy, arthroscopy or reconstructive surgery) were also excluded from

the study. Out of 42 cases finally included in the study 31 (73.8%) were males while 11 (26.2%) were females. Mean Age was 31.4 years. (range 18-54 years). Out of 42 cases we found one or more arthroscopic findings in 36 (85.7%) cases while MRI was normal or showing grade I changes in these cases. X-rays were normal in all cases.

Arthroscopic Findings

| | |
|------------------------------|------------|
| Chronic synovitis | 02 (4.8%) |
| ACL Tear (partial) | 08 (19%) |
| ACL Tear (complete) | 02 (4.8%) |
| MM Tear (ant. horn) | 03 (7.1%) |
| MM Tear (post. horn) | 10 (23.8%) |
| Degenerating MM | 02 (4.8%) |
| Asymptomatic plicae | 22(52.4%) |
| Symptomatic Medial plicae | 02(4.8%) |
| Osteochondral defects | 07(16.7%) |
| Chondromalacia patellae | 03(7.1%) |
| Avulsion of Lateral Meniscus | 01(2.4%) |
| Loose Bodies | 02(4.8%) |
| PCL Tear | Nil |
| No abnormality | 06 (14.3%) |



DISCUSSION

Knee is a hinge variety of synovial joint. Its stability mainly depends on ligaments. Two cruciates and two collateral ligaments. C-shaped fibrocartilagenous menisci are two intra-articular structures acting as shock absorbers. All these structures are at risk in knee injury. Knee is the most commonly involved joint during trauma. Twisting injuries are common among players specially footballers resulting in menisco-ligamentous injury. Most of the bony injuries can be picked on X-rays but meniscal and ligamentous injuries are suspected clinically and confirmed on MRI. Sensitivity of MRI is more than 95% in complete menisco-ligamentous injuries. Further evaluation is done with arthroscopy if indicated clinically and on MRI. MRI is a non invasive procedure while arthroscopy is invasive. Complications of arthroscopy include infection, post-operative pain, DVT, damage to articular surface. Therefore only selective cases are subjected to arthroscopy who are likely to be benefitted by the procedure. Menisco-ligamentous injuries are classified into four grades. Grade I & II are intra-substance not reaching the articular surface. Grade III & IV are complete and distorted tears respectively. Generally Grade I & II injuries are managed conservatively followed by rehab program, while Grade III & IV are managed by arthroscopy. Similarly Grade I & II injuries of ligaments are partial and managed conservatively while Grade III & IV may need repair or reconstructive surgery. However there are several patients who are suspected to have Grade III/IV menisco-ligament injury clinically but MRI does not confirm that. Such patients are generally managed conservatively. This retrospective study was done to evaluate the findings of arthroscopy in patients who show normal MRI or Grade I changes but there was a strong clinical suspicion of advanced menisco-ligamentous injury. Though MRI was reported by different qualified radiologists but complete clinical information was provided prior to MRI. Clinical examination and arthroscopy was done by the same consultant. Interval between MRI and arthroscopy was not more than 6 weeks. Findings of arthroscopy were taken as the standard. Out of 209 arthroscopies done only 42 fulfilling the

criteria were included in the study. 6 cases (14.3%) clinically suspected to have advanced menisco-ligamentous injury were found normal at arthroscopy as were the findings of MRI. 36 cases (85.7%) were having some findings which were not picked by MRI. Mostly missed findings were grade III tears of medial meniscus posterior horn (23.8%), partial tear ACL (19%), osteochondral defect (16.7%), anterior horn tear MM (7.1%) and articular fibrillation (14.2%). 2 cases of complete tear of ACL were missed. No PCL tear was missed on MRI in this study.

CONCLUSIONS

This study shows that clinical examination done carefully has a high diagnostic accuracy. All cases suspected to have menisco-ligamentous injury must undergo MRI test evaluation. It's a non-invasive test, can provide additional useful information and clinical findings can be confirmed in documentary form. It has medico-legal value and helps in deciding the future course of treatment. However there are several patients who are clinically suspected to have an advanced menisco-ligamentous injury but MRI test is either normal or shows minor injury. Such patients if remain symptomatic should be re-examined and should not be denied arthroscopic evaluation just because MRI test is normal or showing Grade I injury only.

Limitations of study

1. Retrospective study
2. All cases were adults in this study
3. MRI was reported by different radiologists

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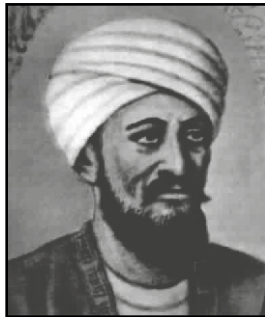
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Abu al-Qasim Khalaf ibn al-Abbas Al-Zahrawi (936-1013)



He is also known in the West as Albucasis, was an Arab Muslim physician and surgeon who lived in Al-Andalus. He is considered the greatest medieval surgeon to have appeared from the Islamic World, and has been described by many as the father of modern surgery. His greatest contribution to medicine is the Kitab al-Tasrif, a thirty-volume encyclopedia of medical practices. His pioneering contributions to the field of surgical procedures and instruments had an enormous impact in the East and West well into the modern period, where some of his discoveries are still applied in medicine to this day.



PREVIOUS RELATED STUDY

Azmat Riaz, Bilal Yasin, Hamid Saeed Malik. EPIDURAL ANAESTHESIA; SINGLE-SHOT FOR DAY CASE KNEE ARTHROSCOPY USING A 50-50 MIXTURE OF LIGNOCAINE AND BUPIVACAINE (Original) Prof Med Jour 17(2) 318-324 Apr, May, Jun 2010.

AUTHORSHIP DECLARATION

| Sr. N. | Author-s Full Name | Contribution to the paper | Author=s Signature |
|--------|-----------------------|---|--------------------|
| 1 | Dr. Fayyaz Ahmad Orfi | Planning, evaluation, analysis, paperwriting and research | |
| 2 | Dr. Shahid Majeed | Data Collection | |